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RR:0072

Mr. Michael M. McElroy
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City and County of Honolulu
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Dear Mr. McElroy:

PROPOSED AMENDMENTS TO SHORELINE SETBACK RULES AND RELATED TOPICS

In response to your request of September 14, 1983, we have (1) reviewed the proposed amendments to the shoreline setback rules and (2) prepared comments pertinent to some of the specific areas of concern requested in your letter. The following members of the University assisted in the preparation of this review: Frisbee Campbell, Hawaii Institute of Geophysics; Ralph Moberly, Geology and Geophysics; Willem Bakker, Ocean Engineering; and Jacquelin Miller, Environmental Center.

AMENDMENTS TO THE SHORELINE SETBACK RULES

Rule 7c

The combination of the definition of "coastal or ocean engineer" in Rule 7c and the use of the term in the regulations conform to custom in requiring that the designers of structures be registered professional engineers. They appropriately limit the designers of shore-protection structures to those engineers who have pertinent training or experience. In Hawaii such engineers are probably registered as civil engineers. However, not all civil engineers are expert in the design of shoreline structures, and registration, in itself, does not assure the pertinent competence of a civil engineer.

Engineers are generally best qualified to estimate the stability of shore structures. However, coastal geomorphologists may have competence equal to that of most coastal and ocean engineers in estimating the effects of shore-protection structures on beaches. Hence, although the definition and use of Rule 7c may be appropriate, the rule should not be interpreted as preventing the DLU from considering the opinions of coastal geomorphologists concerning the effects on beaches of proposed shore-protection structures.

We note that as presently worded the definition includes a requirement for competence in "environmental" protection. Since the remainder of these rules emphasize protection of structures, not necessarily the environment, this restriction seems inappropriately applied and probably unnecessary. We would suggest deletion of "in such a manner that such environments are protected."

Rule 7j

The first sentence of the definition of the "shoreline" in Rule 7j, although not in agreement with the usual interpretations of the geological definition of shoreline: "the line where land and water meet", is in conformity with the definition in the State Shoreline Setback Act. It is, however, internally inconsistent in its reference to the upper reaches of the wash of waves which connotates an area not a "line"; and in the combination of:

- (i) its recognition that the shoreline is usually evidenced by the "vegetation line" or uppermost debris line, and
- (ii) its exclusion of all storm waves from those whose limiting reach determines the position of the "shoreline"

As recognized in "Shoreline Property Boundaries in Hawaii" (Hawaii Coastal Zone Management Program, Tech. Suppl. 21, DPED, 1980), the "vegetation line" and the uppermost debris line represent the normal inland limit of the wash of waves, including normal annual storm waves and not excluding all storm waves. However, until the Shoreline Setback Act is amended, the first sentence of Rule 7j must be retained.

The second and third sentences of Rule 7j exclude certain features from those along which shorelines are to be determined. For correct grammatical usage, either the subjects of these sentences must be made plural ("Shorelines") or the objects of the prepositions of those sentences must be made singular "a berm, a causeway, a revetment or a similar structure that encloses a fishpond, a pool, a tidal basin, or a similar feature"; "a harbor, an inland waterway, a marina, an inland pond, or a lake".

There is no explicit authority in the Shoreline Setback Act for the exclusions represented in the second and third sentences. It was probably intended that, at a fishpond, etc., the "shoreline" from which the shoreline setback line is to be offset should be that along the natural shore, not that along the ocean side of the fishpond wall. For this reason the second sentence is appropriate especially if, in addition to the grammatical correction discussed above, the non-defining relative pronoun "which" is replaced by the defining pronoun "that".

It was also probably intended that shoreline setbacks not be required along inland waterways, ponds, or lakes. However HRS 205-36 provides that: "wharfs, docks, piers, and other harbor and waterfront improvements and any other maritime facility and watersport recreational facilities may be permitted within the shoreline area". Yet without a "shoreline" along the margin of a harbor or marina there can be no "shoreline area." The DLU may choose not to initiate the determination of the "shoreline" along a harbor or marina, but it cannot state that: "A shoreline shall not be established along harbors... or marinas." "Harbors" (or a harbor) and "marinas" (or a marina) should be deleted from the features listed in the third paragraph.

Rule 7l

The amendment of Rule 7l improves upon the language of the Shoreline Setback Act, but to complete the improvement "landward" should read "landward of".

Rule 7o

In engineering terms, the generally accepted definition of a "tidal basin" is an "artificial" body of water. Its use in the definition of "shoreline" (Rule 7j) would appear to apply

to a basin enclosed by artificially created structures. Clarification of the "artificial" or "natural" origin in the tidal basin definition needs to be addressed to avoid inconsistency or confusion with Rule 7j.

Rule 7p

The definition of vegetation growth in (new) Rule 7p is that recommended in "Shoreline Property Boundaries" (op cit.).

Rule 9.1

The first paragraph of Rule 9.1 recognizes that the shoreline setback line shall be established generally 40 feet inland from the "shoreline", as provided by the Land Use Commission. The second, third, and fourth paragraphs, (a) through (c), provide for three exceptions under which the width of the shoreline setback area shall be only 20 feet. These exceptions also are conformable with those provided in the LUC regulations. However, the language of the second sentence of exception (a), even if in accord with usual legal usage, is confusing. At least in it the word "a" should be deleted from the phrase "a rectilinear subdivisions".

Although the DLU rule is consistent with the LUC rule as to the widths of the "shoreline areas" (shoreline setbacks), it must be recognized that the LUC rule established merely minimum widths. The Shoreline Setback Act provides in the section on "Shoreline setback lines established by county" (HRS 205-34): "The several counties through ordinances may require that shoreline setback lines be established at a distance greater than that established by the commission."

It should be recognized that even a 40-foot setback may be significantly less than the shoreward shift in the shoreline that may result from erosion in the foreseeable future and thus may guard inadequately against the hazard of such erosion to near-shore structures. It should also be recognized that there is no correlation between the erosion hazard at parcels of land and the sizes of parcels. Because the construction of a sea wall to protect structures on shore from the erosion hazard may lead to seriously detrimental beach effects, the City and County of Honolulu should use whatever means are available to it to prevent the erection of structures on shores where they are liable to need protection from erosion. As early as possible the City Council should by ordinance provide for the establishment of shoreline setback lines at greater distances from the shoreline than that provided by the LUC, regardless of parcel size, wherever erosion to greater distances from the present shoreline is likely in the foreseeable future. The erosion hazard is negligible on rocky shores but may be substantial on beach shores. Because the hazard varies greatly from beach to beach, and is best evaluated by experts, it would be best if the ordinance did not specify at what distances back of the shore at various beaches the shoreline setback line should be established, but merely promulgate a standard to be used by the DLU in establishing the shoreline setback lines at beaches. When such an ordinance is passed, the DLU should revise its shoreline setback rules as the ordinance will permit.

It should also be recognized that even a 40-foot setback may be significantly less than the width of the zone subject to inundation by storm waves, storm surges, and tsunamis. However, the regulation of structures with respect to wave hazards is provided under rules pursuant to the National Flood Insurance Program rather than the Shoreline Setback Rules.

Rule 9.2

The title of Rule 9.2 refers to "no reduction of shoreline setback line." A line has

no width that can be reduced, and reduction of the length of the shoreline setback line is surely not intended. What is meant is reduction in the width of the shoreline setback or "shoreline area." The text of the rule refers to "A 40-foot shoreline setback line". What is meant exactly is a setback line 40 feet inland of the shoreline, although the abbreviated terminology may be acceptable.

Rule 10.1

An addition proposed in Rule 10.1 will require certification of the basis for determining the position of the shoreline if it is not the "vegetation line." The addition is proposed, no doubt, because along some shores, particularly those on which there has been considerable human disturbance, there may be no "vegetation line" equivalent to that at an undisturbed shore, and no debris line. The primary definition of a shoreline, it must be remembered, is in terms of a wave wash limit, and in the absence of a vegetation line or debris line the surveyor must exercise judgement as to that limit. It is quite appropriate that, in such a case, the basis for the judgement be stated explicitly. However, it should be recognized that, although there will be a tendency for waves to wash highest on a shore at high tide, the highest wash of waves is not necessarily at high tide, and we suggest deletion of the phrase "at high tide".

Rule 10.2

The context of Rule 10.2 with regard to the location of the shoreline by current surveys appears to be in direct conflict with Rule 9.2 which prohibits modification of an established 40 feet shoreline setback line. Clarification or correction is needed.

Rule 12.2

Rule 12.2 effectively permits any activity within the shoreline area if it is so called "emergency work." This appears to be a significant loophole in the rules and we would suggest that emergency work be restricted to: "short-term (90 days?) protective structures of a non-permanent nature, i.e., sand bags, tetrapods, sand grabber systems or coffer-dam-type structures. Application for a permit for a permanent structure, complete with environmental baseline materials appropriate to the area in question, should be required concurrently (or nearly concurrently) with the application for approval of an emergency structure.

Rule 13.3

To more precisely define the exceptions under which structures can be permitted within the shoreline setback area, we suggest replacement of the phrase "unless indicated otherwise in these Rules" in line 4 of this rule with the phrase "except as explicitly provided in these Rules".

Rule 13.4

It is proposed appropriately to replace original Rule 13.4, which is now moot, by one recognizing that as has been provided by the 1982 amendment of the Shoreline Setback Act, offshore sand mining, otherwise impermissible, may be permitted for the replenishment of sand on public beaches at Waikiki, Ala Moana, and Kailua beaches.

Rule 14.2

Rule 14.2 requires applications for shoreline facilities to be accompanied by a certification report from a "coastal engineer". For consistency with the amendment proposed in Rule 14.6, we suggest that the requirement be for a report from "a coastal or ocean engineer."

An amendment of Rule 14.2 requires the use of mean-sea-level (msl) datum in place of mean-lower-low-water (mllw) datum in plans for facilities proposed in the shoreline setback area. Although the use of msl datum will facilitate correlation of the elevations with topography and the elevations of land structures, the use of mllw datum is conventional for shore protection facilities and facilitates correlation with bathymetry. The essential requirement is that the datum plane be identified on the plans. It would be helpful if a conversion between mllw and msl elevations is provided, and it is no doubt convenient to require use of a uniform primary datum plane.

Rule 14.6

It is proposed appropriately that provision be made in Rule 14.6, as in a 1982 amendment of the Shoreline Setback Act, to allow clearing of sand from drainage pipes and canals and the mouths of streams.

Rule 15.2

A proposed addition to Rule 15.2 would require that structures that are in the Conservation District but have not been permitted by the Board of Land and Natural Resources, and that interfere with normal wave wash, be removed before the position of the shoreline is established or a shoreline variance is granted. As now worded, the proposed addition does not seem reasonable because: a) it would require removal of a failing structure in order to get a variance for its reconstruction; b) it would apply only to those structures "constructed by or for the applicant..." and not to structures constructed prior to the present applicant's ownership; c) it would apply to non-conforming structures covered by Rule 14.3; and d) structures "which interfere with the highest wash of waves inland of such structure" have, in most cases, modified the shoreline area to such an extent that a "natural" shoreline could not be accurately estimated for purposes of certification even if the removal of the structure was accomplished. If the proposed addition is retained, we suggest the following language:

"unless the applicant removes any structure that lies within the Conservation District and that interferes with the inland wash of waves other than a structure permitted by the Department of Land and Natural Resources, a non-conforming structure as defined in Rule 14.3", or a structure that, with the variance sought, would be reconstructed.

Rule 15.3

An addition to Rule 15.3 will mandate the grant of a shoreline variance if either of two conditions specified in the original rule applies. It appears that, with the revision, grant of a variance will be mandated if the applicant will suffer a hardship without it, even if the variance is not in the public interest. Moderate hardship to an applicant does not seem appropriate rationale for the grant of a variance if there will be substantial public detriment, as for example through the loss of a beach. However, the mandate seems required by HRS 205-34, which provides that the responsible governmental body (the DLU in this case) "shall grant a variance..." under either of the conditions specified.

A second addition to the rule will allow the DLU to impose conditions intended to minimize interferences with natural shoreline processes. This addition is highly desirable.

Rule 15.6

We believe that Rule 15.6 should require that, in arriving at a decision for approval or disapproval of a shoreline variance and SMP, the Director, the Council, or their delegated authorities, must consider the findings presented in the Environmental Assessment or Environmental Impact Statement, including, when practicable, the mitigating measures recommended to reduce or preclude significant detrimental impacts.

SPECIFIC TOPICS

In addition to comments on the revision of the DLU rules you have asked specifically for advice on four topics:

1. Establishing a method for measurement and certification of the "shoreline";
2. Finding an alternative to the requirement for a "coastal" engineer's report;
3. Setting criteria for granting emergency permits; and
4. Establishing a system to implement the penalty clause as provided for in the State Law.

Methods for determining position of shoreline

We assume that the first topic may be rephrased: "Appropriate methods for determining the position of a "shoreline". For a thorough discussion of this topic see "Shoreline Property Boundaries", CZM Tech. Memo 21, DPED, 1980.

The first question to be addressed is how the "shoreline" is defined. It must be recognized that the primary bases for determining: a) the "shoreline" in the definition in the Shoreline Setback Act; b) the mauka boundary of the Conservation District along the shore in the LUC's definition; and c) the makai boundaries of most shoreline parcels of privately owned land as interpreted by the State Supreme Court, are landward limits of wave wash—neither lines that are fixed in position on unstable shores nor tide lines. Tide lines could be determined more precisely than wave-wash limits. However, on unstable shores, tide lines would be even less stable than wave-wash limits. Although precision and stability are desiderata in the position of a boundary, precision is of negligible importance in an unstable boundary, and a stable boundary on a naturally unstable shore would lead to great administrative problems, particularly where, as in Hawaii, the common-law doctrines of accretion and erosion apply, and where the State is supposed to be the owner of all submerged lands.

That there are limits to the inland extent of wave wash is a statistical concept. Since various types of waves and waves over different periods or with different frequencies of occurrence can wash inland to different extents, some specification of a recurrence interval or frequency of the particular waves is necessary to define the wave wash limit that is followed by a boundary, and the definition might also include a limitation to certain types of waves.

As recognized in the Shoreline Setback Act, the LUC rules, and Supreme Court decisions, there is essential coincidence between the "vegetation line" and the uppermost debris line, where these are recognizable, and a wave-wash limit. As recognized in the LUC rules and to a limited extent in Supreme Court decisions, the wave-wash limit is the normal annual limit of wave wash. Unfortunately, the wave-wash limit followed by the "shoreline" as defined in the Shoreline Setback Act is the limit of the wash of waves excluding storm waves, whereas it is normal annual storms that generally determine the normal annual limit of wave wash.

If the references in the Shoreline Setback Act to the vegetation line and the uppermost debris line are disregarded, it becomes necessary to determine what is meant in the Act by waves other than storm waves and tsunamis. We cannot advise on this question, which we doubt that the drafters of the Act even recognized.

If the exclusion of storm waves in the definition is disregarded, then the "shoreline" is equivalent to the mauka boundary of the Conservation District and to the makai boundaries of most privately owned parcels, and there are in principle two means to determine the position of the "shoreline" and these other boundaries.

1. If there are recognizable "vegetation lines" and/or recognizable debris lines, one of which may reasonably be considered controlled by annual wave wash, the boundary may be considered to follow the "vegetation line" or uppermost debris line. However, the vegetation line or uppermost debris line may be discontinuous, or may obviously represent discontinuously the limit of annual wave wash, and some judgment on the part of the surveyor is unavoidable. The crest of the beach berm will often be a further useful guide.
2. In the absence of a vegetation line or debris line meeting the above qualifications, the position of the boundary must be that indicated by the inland-most limit of wave wash actually monitored over a year, or the estimated position of that limit.

Particularly if there is not a visible line meeting the criteria in method 1, a further question arises in the case of an artificially modified shore, for example one with a seawall.

We suggest that at a "non-conforming" seawall, "grandfathered" under the Shoreline Protection Act, the "shoreline" should be considered that on the seawall. With this consideration, if the seawall has a vertical face, the question is trivial, because all wave-wash lines, other than those of waves overtopping the wall, lie in the same vertical plane.

The proposed revision of Rule 15.2 suggests strongly that where there is an illegal seawall, the "shoreline" should not be at the limit of wave wash against the wall but where it would have been without the wall. We should point out that this is not necessarily where the limit of wave wash would be immediately after removal of the seawall, nor where it would be over a year beginning, say, half a year or a year after the seawall were removed. The best that can be done is for a qualified coastal engineer or coastal geomorphologist to estimate where the wave wash limit would have been if the seawall had never been constructed. We suggest that removal of the seawall will not necessarily lead to improvement in the estimate.

In summary, it is futile to seek a method for determining with precision the position of the "shoreline". It is best determined as following the vegetation line or the uppermost debris line if either of these lines is identifiable and appears to represent the limit of annual wave wash. If not, the best that can be done without a protracted period of monitoring

is to have a coastal engineer or coastal geomorphologist estimate the position of the annual wave-wash limit.

Alternative to coastal engineers report

We do not think a satisfactory alternative can be found to the requirement of a coastal or ocean engineer's report on a problem involving the stability or shore effects of a shoreline structure.

Criteria for emergency permits

See comments under Rule 12.2 in the preceeding discussion of the proposed amendments.

Implementation of penalty clause

Although we consider that it is of little use to promulgate rules unless penalties for their violation are provided, and useless to have penalty provisions unless penalties are imposed, we have no advice to offer on the implementation of the penalty clause in the State law.

We appreciate the opportunity to provide comments on these proposed rules and commend the Department of Land Utilization in their attempts to further clarify procedures and regulation of activities in the coastal-shoreline regions of Oahu. If you have any questions on our comments or if we can be of further assistance please call us at 948-7361.

Yours truly,



Doak C. Cox
Director

cc: Frisbee Campbell
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